

METHOD OF MANUFACTURING AND STRUCTURE OF  
SEMICONDUCTOR DEVICE WITH FIELD OXIDE STRUCTURE

ABSTRACT

A method of forming a semiconductor device includes forming a body region of a semiconductor substrate and forming a drift region adjacent at least a portion of the 5 body region. A dopant is used to form the drift region. The dopant may comprise phosphorous. The method also includes forming a field oxide structure adjacent a portion of the drift region and a portion of a drain region. The field oxide structure is located between a 10 gate electrode region and the drain region and is spaced apart from the gate electrode region. Atoms of the dopant accumulate adjacent a portion of the field oxide structure, forming an intermediate-doped region adjacent a portion of the field oxide structure. The method 15 includes forming a gate oxide adjacent a portion of the body region and forming a gate electrode adjacent a portion of the gate oxide.